

Application No.: 09/980,376  
Amendment Dated November 13, 2009  
Reply to Office Action of September 29, 2009

Amendments to the Claims:

1. (Currently Amended) An apparatus ~~in a cellular communications network~~, comprising:

    a monitor configured to monitor at least one parameter related to an active connection between a mobile station and a support node, wherein the support node is within a core network of ~~the~~a cellular communications network, said at least one parameter comprising user activity; and

    a determining unit configured to determine whether the connection between said support node and said mobile station is to be released based solely on said at least one parameter monitored by said monitor,

    wherein the apparatus is configured to cause the connection between the mobile station and the support node to be established, and further configured to cause the connection to be ~~completely~~ released when there is user inactivity for a predetermined period of time by causing transmission of a release message comprising an indication of the reason for releasing the connection, and

    wherein the apparatus is external to the core network of the cellular communications network.

2-3. (Cancelled)

4. (Currently Amended) The apparatus as claimed in claim 1, wherein said apparatus is further configured to cause sending of send a message to the support node indicating that said connection has been released.

5. (Currently Amended) The apparatus as claimed in claim 1, wherein said apparatus is further configured to cause sending of send a request for the connection to be released to said mobile station.

6. (Currently Amended) The apparatus as claimed in claim 5, wherein the support node is configured to send a connection release command to said apparatus in response to the

release request message received by said apparatus, and wherein said apparatus is further configured to control the release of said connection.

7. (Currently Amended) The apparatus as claimed in claim 6, wherein said apparatus is further configured to cause sending of send-a release request to said mobile station in response to the release command received from said support node.

8. (Currently Amended) The apparatus as claimed in claim 7, wherein said apparatus is further configured to cause sending of send-a message to said support node advising that the connection has been released.

9. (Currently Amended) An apparatus ~~in a cellular communications network~~, comprising:

a monitor configured to monitor at least one parameter related to an active connection between a mobile station and a support node, wherein the support node is within a core network of the cellular communications network, said at least one parameter comprising an elapsed time since a last use of the connection; and

a determining unit configured to determine whether the connection between said support node and said mobile station is to be released based solely on said at least one parameter monitored by said monitor,

wherein the apparatus is configured to cause the connection between the mobile station and the support node to be established, and further configured to cause the connection to be completely released when the connection has not been used for a predetermined time by causing transmission of a release message comprising an indication of the reason for releasing the connection, and

wherein the apparatus is external to the core network of the cellular communications network.

10. (Previously Presented) The apparatus as claimed in claim 9, wherein the predetermined time depends on the type of traffic for which the connection is intended.

11. (Previously Presented) The apparatus as claimed in claim 9, wherein the predetermined time depends on the quality of service profile of the traffic for which the connection is intended.

12. (Currently Amended) An apparatus ~~in a cellular communications network~~, comprising:

a monitor configured to monitor at least one parameter related to an active connection between a mobile station and a support node, wherein the support node is within a core network of ~~the~~a cellular communications network, said at least one parameter comprising a state of said mobile station; and

a determining unit configured to determine whether the connection between said support node and said mobile station is to be released based solely on said at least one parameter monitored by said monitor,

wherein the apparatus is configured to cause the connection between the mobile station and the support node to be established, and further configured to cause the connection to be ~~completely released based on the state of the mobile station~~ by causing transmission of a release message comprising an indication of the reason for releasing the connection, and

wherein the apparatus is external to the core network of the cellular communications network.

13. (Currently Amended) An apparatus ~~in a cellular communications network~~, comprising:

a monitor configured to monitor at least one parameter related to an active connection between a mobile station and a support node, wherein the support node is within a core network of ~~the~~a cellular communications network, said at least one parameter comprising a movement of the mobile station; and

a determining unit configured to determine whether the connection between said support node and said mobile station is to be released based solely on said at least one parameter monitored by said monitor,

wherein the apparatus is configured to cause the connection between the mobile station and the support node to be established, and further configured to cause the connection to be completely released based on the movement of the mobile station by causing transmission of a release message comprising an indication of the reason for releasing the connection, and

wherein the apparatus is external to the core network of the cellular communications network.

14. (Previously Presented) The apparatus as claimed in claim 13, wherein an amount of updating information received in a given time from the mobile station is used as a measure of the movement of the mobile station.

15. (Previously Presented) The apparatus as claimed in claim 14, wherein said updating information comprises universal mobile telecommunication systems terrestrial radio access network registration area updates.

16. (Currently Amended) An apparatus ~~in a cellular communications network,~~ comprising:

a monitor configured to monitor at least one parameter related to an active connection between a mobile station and a support node, wherein the support node is within a core network of ~~the~~a cellular communications network, said at least one parameter comprising a location of the mobile station; and

a determining unit configured to determine whether the connection between said support node and said mobile station is to be released based solely on said at least one parameter monitored by said monitor,

wherein the apparatus is configured to cause the connection between the mobile station and the support node to be established, and further configured to cause the connection to be completely released based on the location of the mobile station by causing transmission of a release message comprising an indication of the reason for releasing the connection, and

wherein the apparatus is external to the core network of the cellular communications network.

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17. (Previously Presented) The apparatus as claimed in claim 16, wherein said at least one parameter comprises associations of the mobile station with different apparatus, and said determining unit being further configured to determine that the connection should be released when said monitor indicates that the mobile station is associated with a different apparatus.

18. (Cancelled)

19. (Previously Presented) A cellular communications network, comprising: an apparatus as claimed in claim 1, a mobile station and a support node.

20. (Cancelled)

21. (Previously Presented) The cellular communications network as claimed in claim 19, wherein said support node is a serving general packet radio service support node.

22. (Previously Presented) The cellular communications network as claimed in claim 19, wherein said network operates in accordance with a universal mobile telecommunication systems standard.

23. (Currently Amended) The apparatus as claimed in claim 1, wherein said apparatus is further configured to cause sending of send a message to the support node indicating that said connection has been released.

24-76. (Cancelled)

77. (Previously Presented) A cellular communications network, comprising: an apparatus as claimed in claim 1, a mobile station and a support node.

78. (Cancelled)

79. (Previously Presented) A cellular communications network, comprising: an apparatus as claimed in claim 4, a mobile station and a support node.

80. (Previously Presented) A cellular communications network, comprising: an apparatus as claimed in claim 5, a mobile station and a support node.
81. (Previously Presented) A cellular communications network, comprising: an apparatus as claimed in claim 6, a mobile station and a support node.
82. (Previously Presented) A cellular communications network, comprising: an apparatus as claimed in claim 7, a mobile station and a support node.
83. (Previously Presented) A cellular communications network, comprising: an apparatus as claimed in claim 8, a mobile station and a support node.
84. (Previously Presented) A cellular communications network, comprising: an apparatus as claimed in claim 9, a mobile station and a support node.
85. (Previously Presented) A cellular communications network, comprising: an apparatus as claimed in claim 10, a mobile station and a support node.
86. (Previously Presented) A cellular communications network, comprising: an apparatus as claimed in claim 11, a mobile station and a support node.
87. (Previously Presented) A cellular communications network, comprising: an apparatus as claimed in claim 12, a mobile station and a support node.
88. (Previously Presented) A cellular communications network, comprising: an apparatus as claimed in claim 13, a mobile station and a support node.
89. (Previously Presented) A cellular communications network, comprising: An apparatus as claimed in claim 14, a mobile station and a support node.
90. (Previously Presented) A cellular communications network, comprising: an apparatus as claimed in claim 15, a mobile station and a support node.

91. (Previously Presented) A cellular communications network, comprising: an apparatus as claimed in claim 16, a mobile station and a support node.

92. (Previously Presented) A cellular communications network, comprising: an apparatus as claimed in claim 17, a mobile station and a support node.

93-95. (Cancelled)

96. (Previously Presented) The cellular communications network as claimed in claim 21, wherein said cellular communications network operates in accordance with a universal mobile telecommunication systems standard.

97. (Currently Amended) An apparatus, comprising:  
a monitor configured to monitor at least one parameter related to an active connection between a mobile station and a support node, wherein the support node is within a core network of a cellular communications network, said at least one parameter comprising at least one of a state of the mobile station, a movement of the mobile station, or an amount of communications between the mobile station and a radio network controller; and  
a determining unit configured to determine whether the connection between said support node and said mobile station is to be released based solely on said at least one parameter monitored by said monitor,

wherein the apparatus is configured to cause the connection between the mobile station and the support node to be established, and further configured to cause the connection to be ~~completely released~~ based on said at least one parameter by causing transmission of a release message comprising an indication of the reason for releasing the connection, and

wherein the apparatus is external to the core network of the cellular communications network.

98. (Currently Amended) An apparatus, comprising:  
a processor configured to monitor at least one parameter of an active connection established between a mobile station and a support node, wherein the support node is within a

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core network of a cellular communications network, and to determine whether the connection between said support node and said mobile station is to be released based solely on said at least one parameter,

wherein the apparatus is implemented in the cellular communication network,

wherein said apparatus is configured to cause the connection between the mobile station and the support node to be established, and further configured to cause the connection to be completely released based on said at least one parameter by causing transmission of a release message comprising an indication of the reason for releasing the connection, and

wherein the apparatus is external to the core network of the cellular communications network.

99. (Currently Amended) A method, comprising:

directing establishment of establishing an active connection between a mobile station and a support node in a cellular communications network through a radio network controller;

monitoring, at the radio network controller, at least one parameter related to the connection between the mobile station and the support node;

determining, at the radio network controller, whether the connection between said support node and said mobile station is to be released based solely on said at least one parameter; and

directing releasing completely, by the radio network controller, of the connection between said support node and said mobile station based on said at least one parameter by causing transmission of a release message comprising an indication of the reason for releasing the connection,

wherein the support node is within a core network of a cellular communications network, and

wherein the radio network controller is external to the core network of the cellular communications network.

100. (Previously Presented) The apparatus of claim 98, wherein said support node is a serving general packet radio service support node.

101. (Cancelled)

102. (Currently Amended) The apparatus as claimed in claim 1, wherein said apparatus is further configured to cause releasing of ~~release~~ the connection between the apparatus and said mobile station dependent solely on only one parameter monitored by said monitor.

103. (Previously Presented) The method as claimed in claim 99, wherein said at least one parameter comprises user activity, and determining to release said connection when there is user inactivity for a predetermined period of time.

104. (Cancelled)

105. (Previously Presented) The method as claimed in claim 99, wherein the monitoring comprises monitoring only one parameter related to the connection between the mobile station and the support node, and wherein the determining comprises determining to release the connection between a network element and said mobile station based solely on the only one monitored parameter.

106. (Currently Amended) An apparatus ~~in a cellular communications network~~, comprising:

monitoring means for monitoring at least one parameter related to an active connection between a mobile station and a support node, wherein the support node is within a core network of ~~the~~a cellular communications network, said at least one parameter comprising an elapsed time since a last use of the connection; and

determining means for determining whether the connection between said support node and said mobile station is to be released based solely on said at least one parameter monitored by said monitoring means,

wherein the apparatus is configured to cause the connection between the mobile station and the support node to be established, and further configured to cause the connection to be completely released when the connection has not been used for a predetermined time by causing

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transmission of a release message comprising an indication of the reason for releasing the connection, and

wherein the apparatus is external to the core network of the cellular communications network.

107. (Currently Amended) An apparatus ~~in a cellular communications network~~, comprising:

monitoring means for monitoring at least one parameter related to an active connection between a mobile station and an support node, said at least one parameter comprising a state of said mobile station; and wherein the support node is within a core network of ~~the~~a cellular communications network,

determining means for determining whether the connection between said support node and said mobile station is to be released based solely on said at least one parameter monitored by said monitoring means,

wherein the apparatus is configured to cause the connection between the mobile station and the support node to be established, and further configured to cause the connection to be ~~completely released~~ based on the state of the mobile station by causing transmission of a release message comprising an indication of the reason for releasing the connection, and

wherein the apparatus is external to the core network of the cellular communications network.

108. (Currently Amended) An apparatus ~~in a cellular communications network~~, comprising:

monitoring means for monitoring at least one parameter related to an active connection between a mobile station and an support node, wherein the support node is within a core network of ~~the~~a cellular communications network, said at least one parameter comprising a movement of the mobile station; and

determining means for determining whether the connection between said support node and said mobile station is to be released based solely on said at least one parameter monitored by said monitoring means,

wherein the apparatus is configured to cause the connection between the mobile station and the support node to be established, and further configured to cause the connection to be released based on the movement of the mobile station by causing transmission of a release message comprising an indication of the reason for releasing the connection, and

wherein the apparatus is external to the core network of the cellular communications network.

109. (Currently Amended) An apparatus ~~in a cellular communications network~~, comprising:

monitoring means for monitoring at least one parameter related to an active connection between a mobile station and an support node, wherein the support node is within a core network of ~~the~~a cellular communications network, said at least one parameter comprising a location of the mobile station; and

determining means for determining whether the connection between said support node and said mobile station is to be released based solely on said at least one parameter monitored by said monitoring means,

wherein the apparatus is configured to cause the connection between the mobile station and the support node to be established, and further configured to cause the connection to be ~~completely~~ released based on the location of the mobile station by causing transmission of a release message comprising an indication of the reason for releasing the connection, and

wherein the apparatus is external to the core network of the cellular communications network.

110. (Currently Amended) A computer readable storage medium encoded with instructions that, if executed by a computer, perform a process, the process comprising:

directing establishment of establishing ~~an active~~ connection between a mobile station and an support node in a communication network through a radio network controller;

monitoring, at the radio network controller, at least one parameter related to the connection between the mobile station and the support node;

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determining, at the radio network controller, whether the connection between said support node and said mobile station is to be released based solely on said at least one parameter; and

directing releasing-completely, by the radio network controller, of the connection between said support node and said mobile station based on said at least one parameter by causing transmission of a release message comprising an indication of the reason for releasing the connection,

wherein the support node is within a core network of the cellular communications network, and

wherein the radio network controller is external to the core network of the cellular communications network.

111. (Previously Presented) The computer readable storage medium as claimed in claim 110, wherein said at least one parameter comprises user activity, and determining to release said connection when there is user inactivity for a predetermined period of time.

112. (Cancelled)

113. (Previously Presented) The computer readable storage medium as claimed in claim 110, wherein the monitoring comprises monitoring only one parameter related to the connection between the mobile station and the support node, wherein the determining comprises determining to release the connection between a network element and said mobile station based solely on the only one monitored parameter.

114. (Previously Presented) The apparatus of claim 1, wherein the apparatus is a radio network controller.

115. (Previously Presented) The apparatus of claim 9, wherein the apparatus is a radio network controller.

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116. (Previously Presented) The apparatus of claim 12, wherein the apparatus is a radio network controller.